



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,158	09/26/2001	Martin Li	TI-33430	9577

23494 7590 11/16/2006

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

GREY, CHRISTOPHER P

ART UNIT	PAPER NUMBER
----------	--------------

2616

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

LD

Office Action Summary	Application No.	Applicant(s)	
	09/964,158	LI ET AL.	
	Examiner	Art Unit	
	Christopher P. Grey	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-14, 16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 7, 8, 10, 14 and 16 rejected under 35 U.S.C. 102(e) under 35 U.S.C. 103(a) as obvious over Jensen et al. (US 6732206) in view of Chen et al. (US 5870628), hereinafter referred to as Chen.

Claim 1 Jensen et al. ('Jensen' hereinafter) discloses an ATM cell being transmitted from a Master unit (element 10 in fig 1). Jensen discloses a slave unit (element 14 in fig 1) receiving the ATM cell (Col 2 lines 8-24). Jensen also discloses a bus for exchanging information between master and slave units (element 12 in fig 1).

Jensen discloses a FIFO buffer (element 22 in fig 1) for storing incoming cells (Col 2 lines 25-34).

Jensen discloses an address translation (calculation) unit (element 20 in fig 1).

Jensen discloses the translation unit including an ATM content addressable memory and look up table (register) as disclosed in Col 2 lines 36-45. Jensen discloses the translation unit accessing this memory and lookup table in order to generate the destination address within the slave (Col 2 lines 8-34).

Jensen does not specifically disclose transferring data from a buffer to a direct memory access unit.

Chen discloses transferring data from a FIFO to a DMA unit (see fig 2 and Col 5 lines 1-30).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the DMA controller, channels registers and FIFO's as disclosed by Chen, within the Slave unit as disclosed by Jensen. The motivation for this combination is an alternative way of transferring data from the FIFO (Col 5 lines 32-43).

Claim 2 Jensen discloses a FIFO buffer (element 22 in fig 1) for storing incoming cells (Col 2 lines 25-34).

Claim 3, 16 Jensen discloses a FIFO unit capable of holding two cells (Col 2 lines 25-34).

Claim 7 Jensen discloses a slave unit containing a processor (element 18 in fig 1).

Claim 8 Jensen discloses data being passed to a UTOPIA bus (Col 5 lines 28-35).

Claim 10 Jensen discloses a FIFO buffer (element 22 in fig 1) for storing cells incoming from a master unit (Col 2 lines 25-34 and see fig 1 elements 10 and 22).

Jensen discloses the translation unit including an ATM content addressable memory and look up table (register) as disclosed in Col 2 lines 36-45.

Jensen discloses the translation unit accessing this memory and lookup table in order to generate the destination address within the slave (Col 2 lines 8-34).

Jensen discloses after address translation, routing the data from the FIFO to their respective destinations (Col 2 lines 25-35).

However, Jensen does not specifically disclose transmitting when storage space is available, a data cell from the buffer storage unit to the direct memory access unit (obvious).

Chen discloses transferring data from the input buffer to a DMA FIFO when the DMA FIFO is available (Col 5 lines 1-31, threshold to ensure availability).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the slave processor as disclosed by Jensen, to inquire about a state of availability as disclosed by Kessler. The motivation for this combination is to avoid failure of delivery due to congestion and delay (Col 6 lines 9-19).

Claim 14 Jensen discloses a master processing unit (fig 1 element 10).

Jensen discloses a slave processing unit (Fig 1 element 14)

Jensen discloses a bus interfacing a master and slave, where the bus exchanges data between a master and slave (element 12 in fig 1).

The bus is connected to the slave, which consists of a FIFO buffer (element 22 in fig 1) for storing data (Col 2 lines 25-34).

Jensen also discloses an ATM content addressable memory as disclosed in Col 2 lines 36-45

Jensen discloses an address translation (calculation) unit (element 20 in fig 1).

Jensen discloses the address translation unit containing a memory, and the address translation unit connected to the FIFO buffer (Col 2 lines 36-45 and see fig 1)

Jensen discloses a look up table (register) within the address translation unit (Col 2 lines 36-45), where the address translation unit seeks a destination address, and routes data to the address port (Col 2 lines 25-35).

Jensen does not specifically disclose transferring data from a buffer to a direct memory access unit.

Chen discloses transferring data from a FIFO to a DMA unit see fig 2 and Col 5 lines 1-30).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the DMA controller, channels registers and FIFO's as disclosed by Chen, within the Slave unit as disclosed by Jensen. The motivation for this combination is an alternative way of transferring data from the FIFO (Col 5 lines 32-43).

2. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen et al. (US 6732206) in view of Chen et al. (US 5870628), in view of Thomas et al. (US 5941952)

Claim 4, 17 Jensen discloses a clock domain (Col 2 lines 46-65). However Jensen does not disclose the buffer storage unit transferring a data cell to the slave data processing unit every clock cycle.

Thomas et al ('Thomas' hereinafter) discloses circuitry for transmitting data from a buffer unit to an interface at a particular rate (Col2 lines 36-54).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify that master unit as disclosed by Jensen, to include Thomas' circuitry

Art Unit: 2616

for controlling the data transfer rate to an interface, where the rate may be manipulated based on a user preference, so as to fulfill transferring of data every clock cycle. The motivation for the modification is to transfer data in a timely manner so as to prevent delays (Col 1 lines 7-11 and Col 2 lines 6-35).

3. Claims 5, 6, 9, 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen et al. (US 6732206) in view of Chen et al. (US 5870628), in view of Kessler et al. (6029212).

Claim 5 Jensen discloses using an address translation unit to determine a destination (Col 2 lines 8-24).

However, Jensen does not disclose the destination locations being selected from a group of a plurality of central processing units and memory locations, at least one central processing unit and at least one memory location.

Kessler et al. ('Kessler' hereinafter) discloses a translation unit for calculating an address of a memory location, and transferring the data to one (selected) of a multiple number of external registers (Col 2 lines 5-17).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to specify the result of the translation (destination) as disclosed by Jensen, to include external registers, where registers are memory oriented and have several processing functions. The motivation for this specification is to address data to a specific location (Col 1 lines 12-15).

Claim 6 Jensen discloses a FIFO buffer (element 22 in fig 1) for storing data cells (Col 2 lines 25-34). Jensen also discloses the FIFO being connected to a processor (elements 22 and 18 in fig 1).

Jensen discloses the FIFO buffer connected to a data bus, furthermore connected to a master, where the bus transports data.

Jensen does not specifically disclose the output unit exchanging information with the master processing unit. However Kessler discloses an I/O controller for receiving and sending messages to a master, where the controller also includes buffering for the input and output data (Col 20 lines 40-52).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the slave unit as disclosed by Jensen to include the controller as disclosed by Kessler for allowing the capability to receive and transmit data to another unit.

Claim 13 Jensen does not disclose the processing unit including a direct memory access unit, and applying the signal identifying the destination location to the direct memory access unit.

Kessler discloses the slave unit coupled to a direct memory access unit that transmits requests and is coupled to a slave unit (Col 20 lines 40-52).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the slave unit as disclosed by Jensen to include a direct memory access unit as disclosed by Kessler, where a request may be dedicated for retrieving a

Art Unit: 2616

destination address. The motivation for this combination is to allow easier and direct access to memory.

4. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen et al. (US 6732206) in view of Kessler et al. (6029212) in further view of Thomas et al. (US 5941952).

Claim 11 Jensen discloses a FIFO unit capable of holding two cells (Col 2 lines 25-34).

The combined teachings of Jensen and Kessler do not specifically transferring a data cell from the buffer storage unit to the ATM slave processing unit on consecutive cycles

Thomas et al ('Thomas' hereinafter) discloses circuitry for transmitting data from a buffer unit to an interface at a particular rate (Col2 lines 36-54).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Jensen and Kessler, to include Thomas' circuitry for controlling the data transfer rate to an interface, where the rate may be manipulated based on a user preference, so as to fulfill transferring of data every clock cycle. The motivation for the modification is to transfer data in a timely manner so as to prevent delays (Col 1 lines7-11 and Col 2 lines 6-35).

Claim 12 Jensen discloses data being passed to a UTOPIA bus (Col 5 lines 28-35).

Response to Arguments

5. Applicant's arguments with respect to claim 1, 10 and 14 have been considered but are moot in view of the new ground(s) of rejection.

The applicant makes arguments pertaining to the claims of the cited references of Jensen and Kessler. It is noted by the examiner that the claims of Jensen and Kessler are not relied on within the rejection of claims 1-17.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

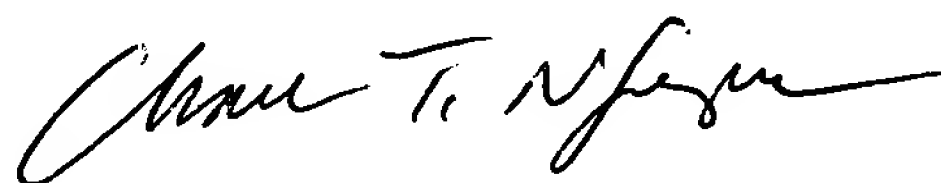
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 10AM-7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571)272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher Grey
Examiner
Art Unit 2616

C. Grey
11/2/06



CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600